

### Gro • Point Sensor Specifications

#### Sensor Options

- GP-SS for sandy soils
- GP-MS for most soils
- GP-HS for high salinity & clay soils

#### Moisture range

- 8 - 42% (0.08 - 0.42m<sup>3</sup>/m<sup>3</sup>)

#### Accuracy

- <1% (+/- 0.01m<sup>3</sup>/m<sup>3</sup>)

#### Temperature range

- Operating: 32 to 150°F (0 to 65°C)
- Storage: -4 to 160°F (-20 to 70°C)

#### Output format

- Standard format: 0.5 - 5.0 mA
- Optional formats: 0 - 2.5V, 4 - 20 mA

#### Cable Length

- Standard Length: 9.8ft (3 m)

#### Connection

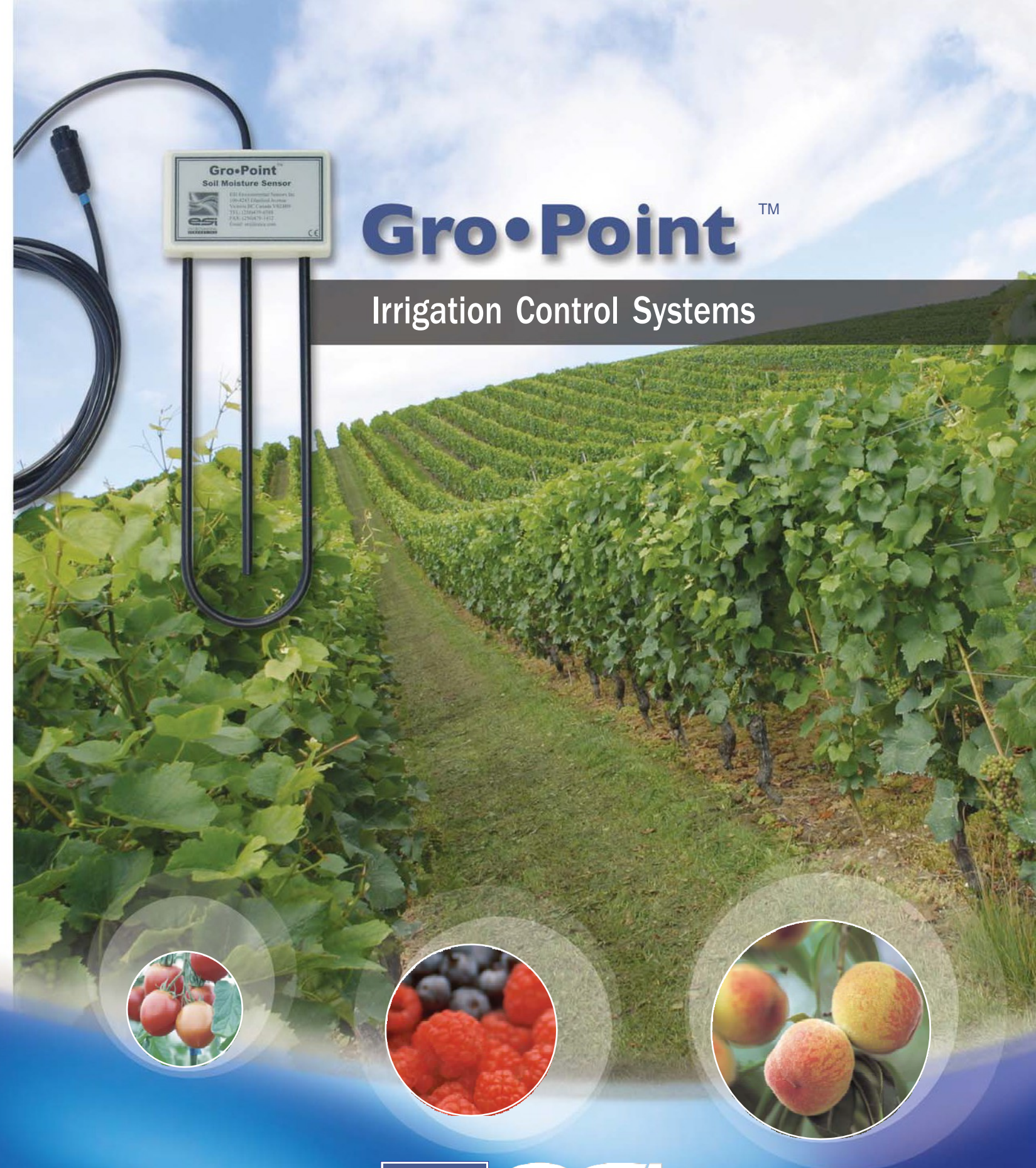
- Standard:  
3 Pin, IP66/IP68 rated environmental connector

#### Power Requirements

- Standard:  
5.5 - 18 VDC, 10 - 20mA (max)

#### Mechanical

- Weight: 1.15 lb (525g)
- Dimensions: 3.75" x 1.5" x 9.5" (9.5 x 3.8 x 24 cm)



# Gro • Point™

## Irrigation Control Systems



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Accurate Soil Moisture Measurements





### Gro•Point Moisture Sensor

Why measure soil moisture content? A good knowledge of soil moisture can lead to higher yields, better quality crops, optimized water and power use and reduced leaching and loss of fertilizer.

Gro•Point is a cost effective, moisture-sensing instrument that provides accurate measurement of soil moisture, by volume, for most agricultural soils.

Gro•Point responds immediately and accurately to changes in soil moisture. The sensor is designed to remain in the soil for the growing season or permanently.

Gro•Point is rugged, easy to use, and maintenance free. Manufactured in stainless steel with all electronics sealed in water-proof epoxy, Gro•Point provides years of reliable service.

The Gro•Point Moisture Sensor operates on a similar principle to radar. The sensor, (which measures the speed of electromagnetic waves) is very sensitive to soil moisture surrounding the probe. This is the simplest and most accurate method of measuring water content in soil.

The sensor probes are factory calibrated for almost all agricultural soils and crops, and can operate in different irrigation systems and water conditions.

Simply install the Gro•Point sensor in your crop's root zone and read the percentage soil moisture on the Gro•Point Display Unit or record it with a Datalogger.



## Gro•Point & Irrigation Control Systems

Gro•Point moisture monitoring systems can be operated manually with a hand-held display unit or automatically as a part of sophisticated irrigation control system.

### Gro•Point Sensor

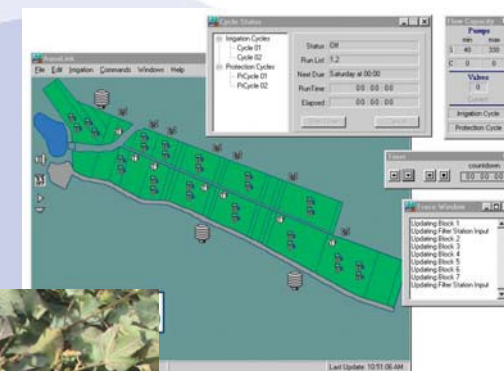
Measures volumetric soil moisture accurately from 8 - 42% in most agricultural soils. The sensor can be installed in any orientation.

### Gro•Point Hand-Held Display Unit

The unit displays the soil moisture content (as a percentage) measured by the sensor.

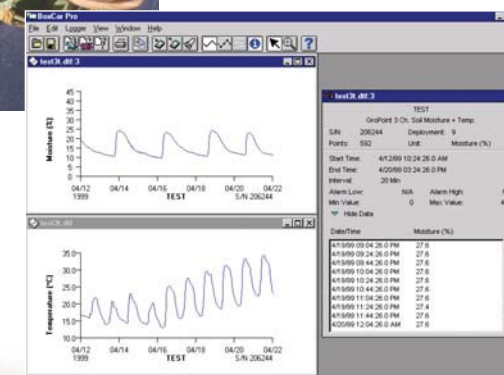
### Aqua•link™

Aqua•Link is a sophisticated, graphically based computerized control system, capable of interfacing to a wide variety of irrigation equipment, including pumps, valves, filters, fertilizer injectors, soil moisture sensors and weather station sensors. Unique irrigation scheduling abilities allows for time based, demand and deficit irrigation, based on soil moisture or other environmental parameters. Aqua•Link also includes built in and customizable crop features, such as growing degree day calculations, frost protection, disease management, etc.



### Gro•Graph™ Datalogger Software

Gro•Graph is a stand-alone component of Aqua•link. The Windows™ based software, is used for the retrieval of data from the field data shuttle or the datalogger. The program includes full feature programming and data collection in an easy to read graphing format.



### Gro•Point Single-Valve Controller

The single valve controller applies water – based on user-adjustable soil moisture thresholds and moisture readings provided by the Gro•Point. The controller has a port to connect an optional datalogger.

### Gro•Point Shuttle

The shuttle is used to transfer data electronically from the field to a computer for easy data retrieval. Each time the shuttle downloads data, it checks the battery voltage and restarts a new measurement cycle. Each datalogger is identified and recorded individually.

### Gro•Point Dataloggers

Gro•Point dataloggers are available in three versions:

1. Four soil moisture sensor inputs
2. Three soil moisture sensor inputs plus a temperature sensor
3. Two soil moisture sensor inputs plus two temperature sensors

Dataloggers record sensor readings at time intervals selected by the user, from seconds up to nine hours. Data storage is in nonvolatile EEPROM memory and is maintained even if the battery fails. Batteries last more than one year under normal operation. Dataloggers can store up to 32,520 measurements divided between the sensor inputs. Data can be downloaded from this unit to the field data shuttle or a PC.



# Low Cost Irrigation Monitoring and Control